

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 100164-MJ	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/HU2004/000045	International filing date (<i>day/month/year</i>) 30.04.2004	Priority date (<i>day/month/year</i>) 30.04.2003	
International Patent Classification (IPC) or national classification and IPC B29C47/88			
Applicant DR-PACK II. et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 2 sheets, as follows:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application 			
Date of submission of the demand 24.11.2004	Date of completion of this report 03.02.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Lorente Munoz, N Telephone No. +49 89 2399-2989		



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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-16 as originally filed

Claims, Numbers

1-7 as amended (together with any statement) under Art. 19 PCT

Drawings, Sheets

1/4-4/4 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2,3,5-7
	No:	Claims	1,4
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-7

Industrial applicability (IA)	Yes:	Claims	1-7
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

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1 The following documents are referred to in this communication:

D1 : GB 2 061 811 A
D2 : US 3 827 842 A
D3 : NL-C-1 008 448 & XP002294657

Re Item V.**2 INDEPENDENT CLAIM 1**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses a method for cooling extruded plastic foil hoses (see figures) comprising the following steps (the references in parenthesis applying to this document):

- the step of feeding pressurized coolant to an unstabilized section of the foil hose 4, and directing the pressurized coolant on the external surface of the unstabilized section of the foil hose 4 (see figures 1, 2; element 21; abstract);
- the step of generating at least one external spiral coolant stream from the coolant streams between the coolant inlet and outlet and providing a ring channel for the external spiral coolant stream by using a tubular skirt at a radial distance from the external surface of the foil hose (see figure 2, elements 10, 11; page 2, lines 34-80);
- the external spiral coolant stream generating tangential coolant streams are directed to a part of the unstabilized section of the foil hose 4 just exiting from a drawing aperture of an apparatus for continuous extrusion of the foil hose (see figures 1, 2),
- cooling and stabilising steps carried out by using a centrifugal force affecting the spiral coolant streams along the external surface of the foil hose 4 and by using density and pressure differences between various parts of the spiral coolant streams (see figure 2; page 2, lines 34-80).

Document D2 also discloses the features of claim 1 (see abstract; figures 1, 2; column 2, line 25 - column 4, line 58).

3 INDEPENDENT CLAIM 4

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 4 is not new in the sense of Article 33(2) PCT.

Document D1 discloses an apparatus for cooling extruded plastic foil hoses, that is arranged in the area of an extruder nozzle having a drawing aperture (see abstract; figure 1), comprising the following features (the references in parenthesis applying to this document):

- an external cooling unit arranged along an external surface of the extruded foil hose 4, and it is provided with a skirt at a radial distance from the external surface of the foil hose thereby forming a channel (see figure 2, elements 10, 21),
- at least one inlet 21 for a coolant connected to a coolant supply 19, and an outlet 23, said coolant inlet 21 is arranged to the foil hose in such a way to feed the coolant in streams for generating spiral coolant stream in the channel between the coolant inlet and outlet (see figure 2; page 2, lines 34-80);
- said external cooling unit of the cooling apparatus is arranged direct on the extruder nozzle around the drawing aperture; said channel forming skirt of the external cooling unit is formed by a tubular skirt (see figure 2, elements 10, 11),
- said inlet of the channel is formed as tangential inlet directed to a part of the unstabilized section of the foil hose just exiting from a drawing aperture for generating the external spiral coolant stream for cooling and stabilising the unstabilized section of the foil hose between the tangential coolant inlet and outlet of the channel (see figure 2; page 2, lines 34-80).

Document D2 also discloses the features of claim 4 (see abstract; figures 1, 2; column 2, line 25 - column 4, line 58).

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4 DEPENDENT CLAIMS 3, 5, 6

Dependent claims 3, 5 and 6 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT) and/or inventive step (Article 33(3) PCT).

5 DEPENDENT CLAIMS 2, 7

Dependent claims 2 and 7 disclose a feature (internal spiral coolant stream) which is not disclosed neither in document D1 nor in document D2.

The problem to be solved by the present invention may therefore be regarded as how to improve the interior cooling in a similar manner to the exterior cooling.

It would be obvious to the person skilled in the art that spiral coolant flows can also be applied to the interior surface of the foil. Furthermore, this is shown in document D3, see figures and abstract.

Thus, the subject-matter of claims 2 and 7 cannot be considered as involving an inventive step (Article 33(3) PCT).

6 The subject-matter of claims 1 to 7 meets the requirements of the PCT with respect to the industrial applicability (Art. 33(4) PCT).

Re Item VII.

7 Independent claims 1 and 4 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

8 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

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9 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 to D3 is not mentioned in the description, nor are these documents identified therein.



C L A I M S :*(As amended on November 16, 2004, under Art. 19 PCT)*

1. In a method for cooling extruded plastic foil hose, which comprises the steps: feeding pressurized coolant, mainly cooling air, to an unstabilized section of the foil hose, and directing the pressurized coolant on the external surface of the unstabilized section of the foil hose; generating at least one external spiral coolant stream from the coolant streams between the coolant inlet and outlet; providing a ring channel for the external spiral coolant stream by using a tubular skirt at a radial distance from the external surface of the foil hose, characterised in that the external spiral coolant stream (17) generating tangential coolant streams are directed to a part of the unstabilized section of the foil hose (F) just exiting from a drawing aperture (4) of an apparatus for continuous extrusion of the foil hose (F), mainly extruder nozzle (2); and preferably an internal spiral coolant stream (16), generated by internal tangential coolant streams, is also used and directed on the internal surface of the foil hose (F) for additional cooling and stabilising the unstabilized section the foil hose (F); said cooling and stabilising steps are carried out by using a centrifugal force affecting the spiral coolant streams (17, 16) along the external, and preferably along the internal surface of the foil hose (F), and by using density and pressure differences between various parts of the spiral coolant streams (17, 16).
2. A method as claimed in claim 1, characterised by providing with two or more tangential inlet and free outlet for the external spiral coolant stream (17) in the ring channel (G).
3. A method as claimed in claim 1, characterised in that both internal and external spiral coolant streams (16, 17) are applied simultaneously, and preferably in counter-current.
4. A method as claimed in any of claims 1 to 3, characterised in that during or immediately after the final stage of the cooling and stabilizing steps, the tubular foil hose (F) is cut up longitudinally at least of two places forming flat foil stripes being rolled up separately by roll pairs (H).
5. An apparatus for cooling extruded plastic foil hoses, that is arranged in the area of an extruder nozzle having a drawing aperture, said apparatus comprises an external cooling unit arranged along an external surface of the extruded foil hose, and it is provided with a skirt at a radial distance from the external surface of the foil hose thereby forming a channel, and at least one inlet for a coolant connected to a coolant supply, and an outlet;

said coolant inlet is arranged to the foil hose in such a way to feed the coolant in streams for generating spiral coolant stream in the channel between the coolant inlet and outlet, characterised in that said external cooling unit (1A) of the cooling apparatus (1) is arranged direct on the extruder nozzle (3) around the drawing aperture (4); said channel forming skirt of the external cooling unit (1A) is formed by a tubular skirt (P) and/or a conical funnel (5); said inlet of the channel (G) is formed as tangential inlet (6, 7) directed to a part of the unstabilized section of the foil hose (F) just exiting from a drawing aperture (4) for generating the external spiral coolant stream (17) for cooling and stabilising the unstabilized section of the foil hose (F) between the tangential coolant inlet (6, 7) and the outlet of the channel (G); the cooling apparatus (1) is preferably provided with an internal cooling unit (1B) arranged within the extruded foil hose (F); said internal cooling unit (1B) is provided with at least one coolant inlet (13A) arranged tangentially to the unstabilized section of the foil hose (F) to feed the coolant in tangential streams for generating internal spiral coolant stream (16) for cooling and stabilising the unstabilized section of the foil hose (F) between its coolant inlet (13A) and outlet (C).

6. An apparatus as claimed in Claim 5, characterised in that the external cooling unit (1A) has a coolant distribution drum (2) mounted on the extruder nozzle (3) coaxially with the drawing aperture (4), whose tangential inlet (6) communicates with a ring duct (7) coaxially surrounding the foil hose (F), around a part of the unstabilized section of the foil hose (F) just exiting from the drawing aperture (4), and the ring duct (7) joins the ring channel (G).

7. An apparatus as claimed in Claim 5 or 6, characterised in that the internal cooling unit (1B) comprises an air distribution unit (11), which is provided with nozzles (13) arranged to direct tangential coolant streams as coolant inlets (13A) to and along internal perimeter of the unstabilized section of foil hose (F); said nozzles (13) are connected to a pressurized coolant supply and their radial position is adjustable within the internal space of the foil hose (F); the internal cooling unit (1B) is provided with a coolant removal pipe (C) open at its exhaust end, the other end of which is preferably connected to a vacuum unit.

(End of document)